INTRODUCTION

The Environmental Assessment (EA) is a site specific analysis of potential environmental impacts that could result with the implementation of a proposed action. The EA assists the Agency in project planning and insuring compliance with the National Environmental Protection Act (NEPA) and making a determination as to whether any "significant" impacts could result from proposed actions. This EA has been prepared for the Swiftwater Field Office's proposed **Green Thunder Regeneration and Commercial Thinning Harvest**. This proposal is in conformance with the *Final - Roseburg District Proposed Resources Management Plan / Environmental Impact Statement* (PRMP/EIS) dated October 1994 and its associated *Roseburg District Record of Decision and Resources Management Plan* (RMP) dated June 2, 1995. The RMP was written to be consistent with the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl* (FSEIS); dated Feb. 1994 and its associated *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (ROD) and *Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Related Species Within the Range of the Northern Spotted Owl* (S&G's) dated April 13, 1994; generally referred to as the "Northwest Forest Plan" (NFP). The ROD establishes management direction consisting of ".... extensive standards and guidelines including land allocations, that comprise a comprehensive ecosystem management strategy" (ROD pg. 1).

The project described in this EA will undergo formal public review. After the completion of public review a "Finding of No Significant Impact" (FONSI) would be signed if appropriate. A signed FONSI finds that no "significant" environmental impact (effect) would occur with the implementation of the proposed actions beyond those already addressed in the FSEIS when the Project Design Features (PDF's) specified in this EA are followed. "Significance" has a strict NEPA definition and is found in regulation 40 CFR 1508.27. The FONSI documents the application of this definition of significance to the proposed action.

A Decision Document would be completed after the signed FONSI to document the decision and reflect any changes as the result of public review, however, Forest Management Regulation 43 CFR 5003.2 states that "[w]hen a decision is made to conduct an advertised timber sale, the notice of such sale shall constitute the decision document." This notice would be placed in *The News Review* and constitute a decision document with authority to implement the proposed action.

I. PURPOSE OF AND NEED FOR ACTION

This section provides a general overview of the proposed action. Included are: the need for the action, a general description and background of the proposal, the issues to be analyzed, and issues eliminated from detailed analysis in this EA.

Need for Action

The RMP and the ROD respond to dual needs: "... the need for a healthy forest ecosystem with habitat that will support populations of native species and includes protection for riparian areas and waters. ... and the need for a sustainable supply of timber and other forest products that will help maintain the stability of local and regional economies. . ."
(RMP pg. 15, ROD, pg. 26). The Swiftwater Field Office proposes to offer the **Green Thunder Regeneration and Commercial Thinning Harvest** for auction in fiscal year 1999 or later. This proposal would help meet the Roseburg District's annual harvest commitment or allowable sale quantity (ASQ).

The RMP also states that "Commercial thinnings are scheduled after developing stands reach a combination of stem diameter and surplus volume to permit an entry that is economical" (RMP, pg. 149). Silvicultural stand exams indicate that the stand identified in this project would benefit from a thinning at this time. The S&G's (pg. C-32) and the RMP (pg. 25) also permits silvicultural practices in Riparian Reserves (RR) to "... acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy [ACS] objectives."

1. Description of the Proposal

   The proposal is to harvest timber in the Little River and Middle North Umpqua Watersheds located in Sections 30, 31and 33; T26S R2W, and Section 25, T26S R3W; W.M. (see maps, Appendix A through C). The proposed project area is approximately 11 road miles east of Glide and 19 air miles south northeast of Roseburg, Oregon. Approximately 540 acres were analyzed for potential harvest activities. New road construction and renovation or improvement of existing roads would also occur. Section II (pg. 4) of this EA provides a more detailed description of the Proposed Action Alternative.

   The ROD (pg. 6) divides the federal landbase into seven land use allocations (LUA) or categories. This project is predominantly in the “Little River Adaptive Management Area (AMA)” LUA. The AMA is designed to "Develop and test new management approaches to integrate and achieve ecological and economic health and other social objectives" (RMP, pg. 32). This project is also in the “Matrix” LUA (Unit 25B). "Stands in the matrix can be managed for timber and other commodity production, and to perform an important role in maintaining biodiversity" (S&G, pg. B-6) by providing for biological legacies (snags, large woody debris and retention trees) that bridge past and future forests. The RMP further classifies the Matrix into two categories: the "General Forest Management Area" (GFMA); which are lands available for timber harvest and “Connectivity / Diversity Blocks" which are lands that are available for timber harvest and also provide connectivity between Late-Successional Reserves and RR. The proposed project is also within the "Riparian Reserves” LUA. The "Riparian Reserves are areas along all streams, wetlands, ponds, lakes, and unstable or potentially unstable areas where the conservation of aquatic and riparian-dependent terrestrial resources receives primary emphasis." (ROD, pg. 7). This project is not in a Key (Tier 1) Watershed. All units, except, are in the Little River AMA.

2. Background

The Green Thunder project occurs within four drainages: Bond Creek, Greenman Creek and Engles Creek of the Little River Watershed which covers approximately 131,853 acres (206 square miles) and the Bob Creek Drainage of the Middle North Umpqua Watershed which covers approximately 123,911 acres (194 square miles). Current landscape patterns include natural stands that are the result of fire, managed stands established following timber harvest, and non-forested agricultural and pasture lands. A major highway (Highway 138) and a small town (Glide) is located within the analysis area.

The Watershed Analysis (WA) for the Little River Watershed was used in this analysis and is available for public review at the Roseburg District office. The Middle North Umpqua WA has not been completed. This project was designed to harvest only on matrix lands and not enter the RR for the Middle North Umpqua Watershed therefore WA is not required because this project would not occur within a Key Watershed, roadless area, or Riparian Reserve (S&G, pg. B-20). WA has identified the following issues of concerns for the Little River Watershed: riparian quality, late-successional forest proportion, slope stability (landslides), water quality and listed species.

The RMP (pg. 34) requires that late-successional forests be retained in watersheds that comprise 15% or less late-successional forests on federal lands in fifth-field watersheds, i.e., watersheds between 20 and 200 square miles (S&G, pg. C-44). Any timber stands greater than approximately 80 years of age are considered late-successional habitat (S&G, pg. B-2). For the Little River Watershed, analysis of current forest inventories shows that of the 82,865 acres of federal ownership (63% of the watershed), approximately 48,855 acres (59%) are late-successional forests. The project as proposed would remove approximately 142 acres of these stands from within the Little River Watershed. 4352 acres are greater than 200 years (Old Growth). It is estimated that 2584 acres of these stands are within reserves and thus unavailable for harvest.

3. Objectives

1. For the AMA portion:
   Develop and test new management approaches to integrate and achieve ecological and economic health and other social objectives

2. For the Matrix portion:
   a. "Produce a sustainable supply of timber and other forest commodities " and "Provide connectivity . . . between late-successional reserves" (RMP, pg. 33).

   b. Improve stand health by reducing the excess stocking in the forest stand to increase the growth and vigor of the remaining individual trees.

3. For the Riparian Reserve portion:
   a. ". . . protect the health of the aquatic system and its dependent species; . . . [and] . . . also provide incidental benefits to upland species." (ROD, pg. 7)

   b. Accelerate the development of large conifers of various form and structure for large trees and future recruitment of coarse woody debris (CWD) within the RR and meet the Aquatic Conservation Strategy objective of 'restoring structural diversity of plant communities in riparian areas'.

4. Implement ecosystem management as outlined in the ROD and RMP.
   - avoid damage to riparian ecosystems and meet the objectives of the "Aquatic Conservation Strategy" (S&G, pg. B-11; RMP pg. 19)
   - "Provide habitat for a variety of organisms associated with both late successional and younger forests." (RMP pg. 33)
   - maintain "ecologically valuable structural components such as down logs, snags and large trees" (RMP pg. 33)
   - improve and/or maintain soil productivity (RMP pg. 35)
   - "Maintain or enhance the fisheries potential of the streams . . . " (RMP pg. 40)
   - protect, manage and conserve all special status and Supplemental Environmental Impact Statement special attention species habitat (RMP pg. 41)

4. <u>Decisions to be Made to Meet Proposal Objectives</u>
   1. The Decision Maker (the Swiftwater Field Manager) will need to decide:
      - if this analysis supports the signing of a FONSI.
      - whether to implement the Proposed Action Alternative, modify the Proposed Action Alternative, choose another alternative, or accept the No Action Alternative.

   2. Consultation with the National Marine Fisheries Service (NMFS) will need to be finalized for the Cutthroat trout and Coho salmon. This project may have to be altered as the result of these consultations (See Section V, para. A).

5. <u>Issues Considered but Eliminated from Detailed Analysis</u>

   The Interdisciplinary (ID) Team identified the following concerns during project design. They were eliminated from further analysis because: (1) PDF's included in the preferred alternative would sufficiently mitigate the anticipated environmental impacts of specific activities, or (2) the impacts are within the limits addressed in the ROD/RMP. Section II, paragraph D (pg.6) provides a list of specific PDF's incorporated into the preferred alternative to deal with these issues. These issues are summarized in Appendix D ("Issue Identification Summary") and addressed the Specialist's Reports in Appendix F.

   1. Water Quality (roads, sedimentation, stream temperature and increased peak flows)
   2. Soils Concerns (erosion, compaction, slope stability and soil productivity)
   3. Late-successional reserve proportions (old growth fragments)
   4. Cumulative ACS impacts due to actions on private lands

"Critical Elements of the Human Environment" is a list of elements specified in BLM Handbook H-1790-1 that must be considered in all EA's. These are elements of the human environment subject to requirements specified in statute, regulation, or Executive Order. These elements are as follows:

1. Air Quality
2. Areas of Critical Environmental Concern (ACEC)
3. Cultural Resources
4. Environmental Justice
5. Farm Lands (prime or unique)
6. Floodplains
7. Native American Religious Concerns
8. Threatened or Endangered Species
9. Wastes, Hazardous or Solid
10. Water Quality, Drinking / Ground
11. Wetlands / Riparian Zones
12. Wild and Scenic Rivers
13. Wilderness

These resources or values (except item #8) were not identified as issues to be analyzed because: (1) the resource or value does not exist in the analysis area, (2) no site specific impacts were identified, or (3) the impacts were considered sufficiently mitigated through adherence to the S&G's therefore eliminating the element as an issue of concern. These issues are also briefly discussed in Appendix E ("Critical Elements of the Human Environment"). Item #8 is addressed in the Specialist's Reports (Appendix F) and the Biological Assessment which is prepared for Endangered Species Act consultation.

6. Issues to be Analyzed

The ID Team noted public concerns over treatment of the RR. These concerns question: Should we enter the RR to achieve management objectives or should we leave them untouched and allow natural processes to continue? Should we consider a treatment but no harvest alternative? The ID Team felt that these concerns warrant more detailed analysis and will be addressed in Section IV, "Environmental Consequences" (pg. 12-16) as a key issue.

The level of riparian entry

II. ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE

This section describes the No Action and Proposed Action alternatives, and any alternatives considered but eliminated from analysis. These alternatives represent a range of reasonable potential actions. This section also discusses specific design features that would be implemented under the action alternatives. All action alternatives were designed to be in conformance with the RMP.

A. The No Action Alternative

The No Action Alternative is required by NEPA to provide a baseline for the comparison of the alternatives. This alternative represents the existing condition. If this alternative were selected there would be no harvesting of timber within the bounds of the project area. Harvest would, however, occur at another location within Matrix lands in order to meet harvest commitments. Selection of this alternative would not constitute a decision to reallocate these lands to non-commodity uses. Future harvesting in this area would not be precluded and could be analyzed under a subsequent EA. There would be no entry into the RR for the purpose of enhancing conditions of late-successional forest ecosystems and applying silvicultural practices to meet ACS objectives at this time.

B. The Action Alternatives

The ID Team considered two action alternatives:

Alt. A - No entry into the Riparian Reserves

Alt. B - Entry into the Riparian Reserves (Section 31) for density management and to enhance diversity

Features common to all alternatives

1. Thinning from below in the uplands (i.e. removal beginning with the smallest diameter trees) and proportional thinning (i.e. maintaining a portion of all diameter classes) in the RR.
2. All the PDF's described in paragraph D below.
3. Retain individual remnant old growth trees (except within road right-of-ways) in the thinning.
4. Maintain a hardwood component

C. The Proposed Action Alternative

Implementation of the Proposed Action Alternative would result in the harvest of approximately 12.0 MCF (thousand cubic feet) or 7.5 MMBF (million board feet) of the Roseburg District's FY 1999 harvest commitment of 7.0 MMCF (45 MMBF). A small amount of additional timber could potentially be included as a modification to this project. These additions would be limited to removal of individual trees or small groups of trees that are blown down, injured from logging, are a safety hazard, or trees needed to facilitate the Proposed Action (ex. guyline and tailhold trees, trees around helicopter landings, or trees within the road construction prism). Generally these trees would be left on site as CWD or snags. Harvest activities would occur on seven units for 183 acres of regeneration harvest, one unit for six acres of partial cut, two units for 106 acres of commercial thinning harvest and two acres of road right-of-way clearcut. Other activities would include: temporary and permanent road construction, road renovation and improvement, subsoiling of previously compacted skid trails, road decommissioning, excavator and hand piling of slash, site preparation with fire (slash burning) and replanting with young seedlings. A study by the Pacific Northwest Experimental Station of the use of slash piles by wildlife species for cover would also be included as part of this proposal.

Approximately 1.4 miles (eight spurs) of **temporary road construction** (roads built, used and decommissioned the same season) and 0.1 miles of **permanent road construction** would occur on BLM land. Approximately 2.5 miles of BLM and private road would have **road renovation** (restoring the road back to its original design) and 10.1 miles would have **road improvement** (improving the road beyond its original design). This would consist of installing or maintaining drainage structures (culverts and ditches), repairing road slippage, buttressing the inlets of stream crossing culverts, reshaping the road surface and surfacing with crushed rock. **Full decommissioning** - "roads determined through an interdisciplinary process to have no future need ..." (TMO, pg. 15) would be accomplished on 0.2 miles of Government road (see pg. 7, para. 1d for description).

Timber harvest would consist of a combination of regeneration harvest and commercial thinning. **Regeneration harvest** is designed to open the forest canopy to allow the re-establishment of a new forest stand. **Commercial thinning** is designed to reduce the density of the forest stand in order to maintain stand vigor and increase wood quality, to promote increased growth on the remaining trees and recover wood fiber that would ordinarily be lost through natural mortality. **Density Management harvest** (in the Riparian Reserves) is designed to reduce the stocking of the forest stand around selected trees in order that the growth of the remaining trees would be accelerated. Other trees are left quite dense to promote mortality. This would accelerate the attainment of old growth forest characteristics by encouraging the development of larger trees more quickly along with patches of mortality for stand diversity.

The technique of modified even aged management and reserve seed tree harvest (RMP, pg. 150) would be used in the regeneration harvest areas. This technique modifies the traditional silvicultural seed tree system to include biological legacies. This legacy consists of retaining a remnant of older aged, large (>20") green trees and snags (reserve trees), and coarse woody debris (CWD). CWD consists of trees, or portions of trees, that have fallen or have been cut and left in the unit for present and future wildlife habitat components (RMP, pg. 146) and to maintain site productivity.

The proposed action would require a mix of skyline cable logging (approximately 274 acres or 92%), and ground based (tractor and shovel) logging (approximately 23 acres or 8%). **Firewood cutting and salvaging** of logging debris (slash) could occur in landing cull decks. The firewood permit would address specific stipulations.

Subsoiling would occur on old existing skid trails used under this action as well as any new trails created.

The **prescribed burning of slash** (burning under the direction of a written site specific prescription or "Burn Plan") would occur in the proposed units to prepare the site for tree planting by providing plantable spots for seedlings (i.e. clearing away the slash), removing or temporarily retarding competing vegetation as well as reducing the fuel loading hazard. Approximately 183 acres would be burned. Burning would be by a combination of broadcast burning (92 ac.) and machine and/or hand pile and burn (150 ac.) Gross yarding of hardwoods would be required on three units (see Appendix C). In the thinning areas only landing debris would be burned. **Fire trails** would be constructed by hand around the perimeters of the units to be broadcast burned prior to ignition.

D. Project Design Features as part of the Proposed Action

This section describes the project design features (PDF's) which would be incorporated in the implementation of the action alternatives. PDF's are site specific measures, restrictions, requirements or structures included in the design of a project to reduce adverse environmental impacts. These are listed in the RMP (Appendix D, pg. 129) as "Best Management Practices" (BMP's) and in the ROD as "Standards and Guidelines" (S&G's). BMP's are measures designed to protect water quality and soil productivity. S&G's are "... the rules and limits governing actions, and the principles specifying the environmental conditions or levels to be achieved and maintained." (S&G, pg. A-6). The proposed action includes the following PDF's :

1. **To meet the components of the "Aquatic Conservation Strategy (ACS)" (S&G's, pg. B-12):**

   a. **Riparian Reserves (Component #1)** would be established. Riparian Reserves consist of the lands incorporating permanently flowing (perennial) and seasonally flowing (intermittent) streams, the extent of unstable and potentially unstable areas, and wetlands. The ROD (C-30) and RMP (pg. 24) specify RR widths equal to the height of two site potential trees on each side of fish bearing streams and one site potential tree on each side of perennial or intermittent nonfish bearing streams. Data has been analyzed from District inventory plots and the height of a site potential tree for the Little River Watershed has been determined to be the equivalent of 180 ft. slope distance. Therefore, RR boundaries would be approximately 180 ft. slope distance from the edge of non-fish bearing streams and 360 ft. from fish bearing streams in the project area. There are no fish bearing streams in the project area or adjacent any units. No wetlands were found within or adjacent to any units.

      1) Silvicultural practices (density management) would be applied within the RR of Units 31A and 31B "to control stocking . . . and acquire vegetation characteristics needed to attain Aquatic Conservation Strategy objectives" (RMP pg. 25). The objective is to develop late seral forest structure and enhance existing diversity by accelerating tree growth to promote larger trees and canopies, and provide a future source of large woody debris for stream structure. Approximately 24 acres of RR would be thinned for this purpose.

2) Streambank stability and water temperature would be protected by maintaining a 30 ft. minimum no cut buffer along all streams within the thinning areas and a 180 ft. no cut buffer along all streams near the regeneration harvest units. Approximately 20 acres were removed from the proposed units and placed in the RR LUA due to unmapped streams.

3) Riparian habitat would be protected from logging damage by directionally felling trees that are within 100' of the RR away from the RR and yarding logs away from or parallel to the streams (i.e. logs would not be yarded across streams). No road building would take place within the Riparian Reserves.

b. **Key Watersheds (ACS Component #2)** were established "as refugia ... for maintaining and recovering habitat for at-risk stocks of anadromous salmonids and resident fish species [RMP, pg. 20; S&G's, pg. B-18]." This project is not in a Key Watershed.

c. **Watershed Analysis (ACS Component #3)** has been completed for this watershed (see pg. 2).

d. **Watershed Restoration (ACS Component #4)** in this watershed would be accomplished primarily through timber sale related projects. This would include road decommissioning and road improvements to reduce road related impacts and RR treatments in second growth stands. This particular project includes the full decommissioning of the unnumbered spur road to the east of Unit 25C for a total of 0.2 mi. and the improvement of 10.1 mi. of existing road. Full decommissioning would consist of "closing and stabilizing ... to eliminate potential storm damage and the need for maintenance" (ROD, pg. B-31). RR would be restored as described in para. 1a(1) above.

2. To minimize the loss of soil productivity (i.e. limiting erosion, reducing soil compaction, protecting slope stability and protecting the duff layer):

a. **Measures to limit erosion and sedimentation from roads** would consist of: (1) Maintaining or improving existing roads (Road No. 26-2-31.0A, 31.1A1, 31.5A, 31.6A and B, 31.10, 33.0A1, 33.1, 33.2, 34.2A1, B and C, 25.2, 25.3A1, 25.4A1; 27-2-5.1, 5.2A and B, and 9.0) to fix drainage and erosion problems. This would consist of maintaining existing culverts, installing additional culverts, buttressing stream crossing culvert inlets and surfacing the road with crushed rock. (2) Building, using and decommissioning temporary roads in the same operating season (i.e. no over-wintering of bare erodible subgrade). When logging is completed, the roadbed would be subsoiled, water barred, blocked and seeded with native species or a sterile hybrid mix depending on availability.

(3) Restricting road renovation and log hauling on unsurfaced roads to the dry season (normally May 15 to Oct. 15), however, operations would be suspended during periods of heavy precipitation. This season could also be adjusted if conditions are such that no environmental damage would occur (ex. the dry season extending beyond Oct. 15). (4) Restricting in-stream work (i.e. culvert replacement and fill removal) during periods of low flow (between July 1 and September 15). These BMP's (RMP, pg. 136-7) are designed to minimize sedimentation and protect water quality.

b. **Measures to limit soil erosion and sedimentation from logging** would consist of: (1) requiring skyline yarding where cable logging is specified. This method limits ground disturbance by requiring partial suspension during yarding (i.e., the use of a logging system that "suspends" the front end of the log during in-haul to the landing, thereby lessening the "plowing" action that disturbs the soil). In some limited, isolated areas partial suspension may not be physically possible due to terrain or lateral yarding. Excessive soil furrowing would be hand waterbarred. (2) Ground based logging would be limited to the dry season as described above.

c. **Measures to limit soil compaction** (RMP, pg. 37) would consist of: (1) limiting ground based logging (Unit 25A), and road right-of-way clearing (Units 25B, C, 31A, C and 33A) to the dry season (May 15 to Oct. 15) when soils a least compactable, however, operations would be suspended during periods of heavy precipitation if resource damage would occur. This season could be adjusted if conditions are such that no resource damage would occur (i.e., the dry season extending beyond Oct. 15). (2) Confining ground based activities to designated skid trails as identified in an approved logging plan. New trails would be limited to slopes less than 35% and with skidtrail spacings averaging at least 150 feet apart. Machines would be limited in size and track width to reduce compaction and trail width. Existing skid trails would be used wherever possible. (3) Subsoiling of decommissioned roads, temporary spur roads and skidtrails with a winged subsoiler (or equivalent) to mitigate compaction damage. Subsoiling is a practice that ameliorates soil compaction and improves water infiltration by pulling a device known as a "winged subsoiler" with a crawler tractor. Existing skidtrails from previous entries would also be tilled where practical (e.g., tilling saturated or very rocky soils or skid trails with advanced reproduction would not benefit soil productivity and therefore would not be practical). The Authorized Officer (Contract Administrator) may decide that additional isolated minor ground based logging would be necessary. Such proposals may be subject to Interdisciplinary review. (4) Machine piling would be limited to the use of low pressure tracked type excavators. Operations would be limited to slopes less than 35 percent under dry soil conditions and use existing trails as much as possible. The equipment would be required to limit the number of passes across a traveled path for most of the area involved and travel over slash to the maximum extent possible. Subsoiling would need be done where determined necessary by the Soil Scientist.

d. **Measures to protect the duff and surface soil layer** (RMP, pg. 37) would consist of burning of slash during the late fall to mid-spring season when the soil and duff layer (soil surface layer of fine organic material) moisture levels are high and the large CWD has not dried. This practice would protect the soil duff layer and the CWD from being totally consumed by fire and the surface layer from being negatively altered. The CWD reserved according to ROD guidelines would also be a source of organic material that can become incorporated into the soil structure (See para. 3b, below). Burning on Category 1 soils (soils recognized as highly sensitive) would be avoided or minimized through low intensity treatment (hand piling and burning under a wet regime).

e. **Measures to protect slope stability** would consist of: (1) grouping retention trees in areas identified (see soils report, Appendix F) in Units 25A, 33A, and 33B. These areas have some stability concerns but not enough to warrant RR status. The added root strength of the extra trees would help maintain stability. (2) Broadcast burning would be limited on steep slopes, i.e. hand pile and burn. (3) New roads would be located in the most stable locations and with proper drainage structures. NOTE: The PDF's listed in paragraph b above would also reduce the risk of slope failure as well as limiting erosion.

3. **To provide for wildlife:**

a. Future nesting and roosting habitat for cavity dwellers would be provided by reserving most existing hard or soft snags (at least 20" in diameter and 20 ft. in height) sufficient to meet the population needs of 40% of potential population (RMP pg. 64). This has been determined to be 1.2 snags per acre. Where this quantity is lacking (in the regeneration units), additional green trees would be reserved for future snag recruitment. Note: Any snag deemed as hazardous to worker safety could be felled at the discretion of the operator and the sales administrator. Such trees would be reserved and left in place as CWD.

b. Wildlife habitat values would be maintained (regeneration units) through the retention of six to eight large (greater than 20") green conifer trees per acre in units 25A, 25B (part), 31C, 33A, B and C and twelve to eighteen trees per acre in Units 25B (part) and 25C and occasional hardwoods as a biological legacy (RMP Appendix E, pg. 150). At least 120 linear feet of CWD per acre (at least 16" in diameter and 16 ft. in length) would be preserved for the habitat of organisms that require this ecological niche (S&G, C-40, para. B). Where CWD is lacking in the above quantities, extra green trees would be reserved for future CWD recruitment (RMP pg. 65).

4. **To protect air quality:**

All slash burning would have an approved "Burn Plan" and be conducted under the requirements of the Oregon Smoke Management Plan and done in a manner consistent with the requirements of the Federal Clean Air Act. The Federal Clean Air Act is designed to reduce air pollution, protect human health and preserve the Nation's air resources. The Oregon Department of Environmental Quality is responsible for implementing the Federal

Clean Air Act, and the Oregon Smoke Management Plan which requires the Oregon State Department of Forestry to manage the amount of smoke released into the airshed as the result of slash and field burning.

5. **To protect and enhance stand diversity:**

a. Retention trees would be reserved as legacies in the regeneration units and retained in a scattered arrangement of individual trees as well as occasional clumps of two or more trees (RMP, pg. 64). Some large "wolf" trees (large, full crowned, limby trees) would be retained for non-vascular plant legacy attributes. Mature and old growth remnant trees in the thinning units would be retained to the greatest extent possible as well as occasional defective and deformed trees that could provide future snags and nesting habitat. Occasional hardwoods would also be retained. Trees remaining would approximate the pre-harvest species composition.

b. Snags and CWD would be reserved as described in paragraph three above.

6. **To prevent and report accidental spills of petroleum products or other hazardous materials:**

Hazardous materials (particularly petroleum products) would be stored in durable containers and located so that any accidental spill would be contained and not drain into riparian areas. All landing trash and logging materials would be removed. Accidental spills or discovery of the dumping of any hazardous materials would be reported to the Sale Administrator and the procedures outlined in the "Roseburg District Hazardous Materials (HAZMAT) Emergency Response Contingency Plan" would be followed.

7. **To prevent the spread of noxious weeds:**

Stipulations would be incorporated into the logging contract to prevent and/or control the spread of noxious weeds by requiring the cleaning of all equipment prior to entry on BLM lands (BLM Manual 9015 - Integrated Weed Management).

8. **To protect the residual stand and promote stand health (Units 31A and B):**

a. As much as possible, trees that would most likely survive logging and overall improve the stand condition and health would be selected for retention.

b. Felling and yarding would be done in a manner to protect the residual stand. No falling and yarding would be permitted from April 15 through July 15 when the sap is up in the trees and damage due to bark slippage could occur. If the Sale Administrator determines that, based on local conditions, excessive damage would not occur this date could be adjusted.

c. Yarder size would be limited to match the size of the yarder to the size of the timber in order to minimize damage from an overly large yarder. Corridors for yarding would be pre-designated by the Sale Administrator. If damage to the stand is apparent, additional protective measures could be required.

9. **To protect Special Status and SEIS Special Attention Plants and Animals:**
a. Four *Buxbaumia viridis* (protection buffer) sites and one *Otidea leporina* (Survey and Manage (S&M)) site were found and would be protected with a 180 ft. and 235 ft.(slope distance) radius buffer respectively to maintain the site. Two *Megomphix hemphilli* and two *Prophysaon dubium* sites (S&M mollusks) were found and would be protected with a 180 ft. radius buffer to maintain the site. Approximately seven acres were reserved from harvest for SEIS special status plant and animal species.

b. If, during subsequent surveys or implementation of the proposed action, any Special Status (threatened or endangered, proposed threatened or endangered, candidate, State listed, Bureau sensitive and Bureau assessment) species or SEIS Special Attention (S&M or protection buffer) species are found, evaluation for the appropriate type of mitigation needed for each species would be done. Stipulations would be placed in the contract to halt operations if any of these Special Status or SEIS Special Attention plants or animals are found to allow time to determine adequate protective measures before operations could resume.

10. **To protect cultural resources:**
Stipulations would be placed in the contract to halt operations and evaluate the appropriate type of mitigation needed to provide adequate protection; if any objects of cultural value (e.g. historical or prehistorical ruins, graves, fossils or artifacts) are found during the implementation of the proposed action.

E. Alternatives Considered but Eliminated

Umpqua Watersheds Inc. advocated a "Restoration Only" alternative that would treat the RR but not have any commercial removal. The issues they cite for considering this alternative is the belief that yarding would cause unacceptable soil disturbance which in turn would lead to increased sedimentation. Another concern was additional harvest and log truck traffic causing an incremental increase in dust and risk of vehicular accidents spilling fuel. These would have impacts on water quality. The IDT considered this alternate but did not concur that this issue would require an additional alternative for the following reasons:

1. The NFP suggests harvest in the RR in order to meet ACS objectives (S&G's, pg. C-32).

2. PDF's would mitigate all the concerns noted concerning soils and water quality.

3. The Silvicultural Prescription would leave additional trees standing for future LWD and snags.

III. AFFECTED ENVIRONMENT

This section describes the existing environment and forms a baseline for comparison of the effects created by the alternatives under consideration. Appendix F (Analysis File) contains Specialist's Reports with supporting information for this analysis.

This project lies within the Oregon Western Cascades Physiographic Province. The FSEIS describes the affected environment for this province on page 3&4-19.

A. Stand Description

Fire had a major role in stand development. The WA documents that stand replacing fire events burned 21% of the Little River Watershed within a 200 year period ending in 1946. Not all the fires were severe, but varied in intensity, leaving a patchy mosaic of forest age classes. The plant association (Atzet, 1990) is most like a Western hemlock-Douglas-fir/salal. The predominant conifer species is Douglas-fir, which acts as a pioneer after a significant disturbance event such as fire. Conifer species in association include incense-cedar, western hemlock, western red cedar, white fir, sugar pine, ponderosa pine and Pacific yew. Hardwoods including madrone, chinkapin, and maple are common and act as pioneers after disturbance. Salal, Oregon grape and sword fern are common on the forest floor. Natural stand history can be estimated from cut stumps in road right of ways and recently harvested areas. Rings on stumps suggest that a stand replacing fire killed most of the dominant trees about 130 to 150 years ago. All previously harvested areas have been successfully regenerated on BLM managed lands. Plantations are mostly uniform in structure and composition. Douglas-fir is the predominant species planted. The other conifer species in plantations originated from seed. The Silvicultural Prescription (Appendix F) provides a more detailed stand description.

Existing natural fuel loading in these stands before harvest can range from approximately 15 tons/acre up to and exceeding 75 tons/acre (PNW Technical Report PNW-105, pg 51-57, 1980). This natural fuel loading varies by stand and depends on the condition of the stand, past salvage logging, and previous disturbance events. Field reviews indicate low to medium levels of natural fuels are present based on current estimates of 15-25 tons/acres. Commonly up to 80% or more of this natural fuel is in large diameter wood, greater than 9 inches in diameter.

B. General Site Description

The **topography** of the general area is characterized by a stair stepping of gently to moderately sloping ground and steep to very steep mountain slopes dissected by stream sideslopes of varying steepness. This stair-stepping pattern can probably be attributed in part to large ancient slump-earthflow events. Elevations range from 1980 feet in Unit 33C to 3330 feet in Unit 25A. Slopes range from nearly flat to over 70%. The proposed units are mostly south facing but all aspects are represented. The **geology** is the Little Butte volcanic series: massive beds of dacitic and andesitic ash-flow tuff and lesser amounts of flow rock of andesitic and basaltic composition.

The **climate** is characterized by cool and mild winters and relatively dry summers. Annual precipitation amounts of 40 to over 70 inches occur primarily between October and March as rain. An ephemeral snow pack is common and can persist for months at the higher elevations in winter. At the lower elevations rain on snow events are a concern because of the potential for flooding. Temperatures average 70 degrees F in the summer and 40 degrees F in the winter.

Soils in the area were formed from a basaltic parent material, overlaid by deeply weathered and altered tuffaceous volcanic rock. The soils vary from very shallow and loamy on the steepest slopes to very deep and clayey on the more gentle slopes. Many soils on the shallow end are very gravelly (25A and 33B). The soils are typically well drained although tiny, wet patches are present in Units 31A and C. The soil textures are generally moderately erodible under bare soil conditions (see Soil's Report, Appendix F).

C. Affected Resources

Botanical - Special status plants (SSP) *Buxbaumia viridis* (a protection buffer moss) and *Otidea leporina* (a S&M fungi) species were observed in the project area. There are some localized infestations of the noxious weed, Scotch broom, in the project area.

Cultural Resources - Six prehistoric archaeological sites and one prehistoric isolate (an area not qualifying as a site) were found in the project area as the result of surveys.

Fisheries - The timber sale is located almost exclusively within the Little River fifth-field watershed. A small portion lies within the Middle North Umpqua watershed. Little River supports five species of anadromous salmonids, including fall and spring chinook salmon, coho salmon, steelhead, and searun cutthroat trout. The watershed also contains Rainbow trout, resident cutthroat trout, brook trout, kokanee salmon, and a large group of non-game and non-native warm game-fish. The timber sale units are all located high in the watershed and would only directly influence the headwaters of these streams. Oregon Department of Fish and Wildlife (ODFW) stream habitat survey data are available for lower Engles Creek, Bond Creek, and Greenman Creek. These streams are characterized as being high gradient

and moderately constrained, valley type channels. Stream habitats are dominated by rapids, substrate consists of sands and gravels, and banks are well shaded by young conifers. A lack of instream wood was noted along most of the surveyed stream reaches. Survey data specific to the streams within the project area are unavailable, but personal observation confirm the streams within the headwaters to be similar to the ODFW reaches (see Fisheries Report, Appendix F).

Hydrology - Streams within the project area include the headwaters of Engles Creek, Bond Creek, East and West Fork of Greenman Creek, Bob Creek, and two unnamed third order streams. All of these streams flow into the Little River, with the exception of Bob Creek, which flows north into the Middle North Umpqua Watershed and North Umpqua River. The elevations of the units range from 2000 feet (#33C) to 3350 feet (# 25A), all within the transient snow zone (TSZ) for this project area. The TSZ is defined as an elevational band on mountain slopes where shallow snowpacks may intermittently occur and melt due to warmer than average rainstorms during the winter season (Harr, 1986). For the Green Thunder project area, the TSZ occurs between approximately 2000 and 4000 feet elevation. The identified beneficial uses of surface water associated with streams and wetlands in the proposed project area include resident fish and aquatic life, anadromous salmonid rearing and spawning, irrigation, and domestic water supply. Little River is listed by the State of Oregon as water quality limited, including reaches downstream of the project area. Parameters for listing are habitat modification, summer pH, sedimentation, and summer temperature. The North Umpqua River is listed due to summer temperature and flow modification criteria (ODEQ, 1996). There are no identified existing water quality concerns for any of the streams within or adjacent to proposed harvest units. However, since four of these streams flow into Little River and one is tributary to the North Umpqua, possible changes to water quality within these streams could potentially affect water quality parameters in the downstream rivers.

Wildlife - The only federally listed species known to occur in the area is the Northern Spotted Owl (NSO). Spotted owls have been located on occasion in Units 25B and C, although no nesting has been documented. As both units are within 0.75 mile of site 2401 and within approximately 1.0 mile of site 2401A, it is assumed birds from this site utilize the habitat in the proposed units.

IV. ENVIRONMENTAL CONSEQUENCES

This section forms the scientific and analytical basis for the comparisons of the alternatives. The probable consequences (impacts, effects) each alternative would have on selected resources are described. This section is organized by the alternatives and the effects on the key issue(s) identified in section I paragraph G, as well as the selected resources. Analysis considers the direct effects (effects caused by the action and occur at the same place and time), indirect effects (effects caused by the

action and occur later in time or farther removed in distance) and cumulative effects (impacts of the action when added to other past, present and reasonably foreseeable future actions) on the resource values. The environmental consequences for the various resources are more fully analyzed in Appendix F (Analysis File). This Appendix contains Specialist's Reports and the supporting information for this analysis. The EIS and FSEIS analyzes the environmental consequences in a broader context. This EA does not attempt to reanalyze all possible impacts that have already been analyzed in these foundational documents but rather to identify the particular site specific impacts that could reasonably occur.

Some irreversible and irretrievable commitment of resources would result from the implementation of this project. An irreversible commitment is a commitment that cannot be reversed whereas an irretrievable commitment is a commitment that is lost for a period of time. An irreversible commitment of petroleum fuels for logging and timber hauling as well as the loss of rock from quarries for crushed rock used in the reconstruction of the road system would result from the proposed action. The irretrievable loss of the ecological and human values associated with old-growth forest would result, if this area is managed on an 80 to 150 year rotation.

A. No Action Alternative:

This alternative would not meet the RMP (pg. 15) objective of producing forest commodities that would contribute to the local economy. It would not realize opportunities for restoration of past disturbance. Road densities and conditions would remain unchanged. There would be no entry into the RR for the purpose of enhancing conditions of late-successional forest ecosystems and applying silvicultural practices to meet ACS objectives.

All of the old natural stands would continue to slowly develop towards the western hemlock, western red cedar climax until a natural disturbance event creates conditions favorable for Douglas-fir regeneration. If fire is excluded, Douglas-fir would probably become less predominant in these stands. The timber production potential of these lands would not be attained, and harvest would not occur at this time. The stand where thinning is prescribed would continue to differentiate in time through self thinning. There would be a loss in volume production due to mortality and unevenly spaced crop trees. Much of the stand currently has space occupied by small trees surrounded by larger trees and is over dense. This condition might persist out to 20 years and would be best described as an over dense pole stand. As the stands age, natural mortality in the form of additional snags and large log biomass increases. Fire would have added fuels that are more resistant to control, leading to a greater chance of a stand replacing fire event.

Botanical - There would be no impact to the two SSP noted above.

Fisheries - The direct impact of stream temperature, sediment delivery, woody debris inputs, and other hydrologic processes would continue at existing rates and levels. Impacts associated with new road construction, timber harvest, and site preparation would not occur

at this time. Vegetation would continue developing over the long-term to provide stable aquatic habitats. This alternative could lead to additional sediment delivery by foregoing needed road decommissioning and improvements. Indirect effects would be both beneficial and detrimental to fisheries. Potential benefits would include no additional sediment delivery from roads and harvest, and no increases in peak flows at this time. Activities designed to restore degraded fisheries habitats, such as improvements to the existing road and drainage networks would not be completed. Without road improvements additional sediment would continue to enter the streams during storm events. Timber harvest within RR proposed to improve stand conditions and aquatic habitats would also not be completed.

Hydrology - There would be no direct or indirect effects on hydrologic resources in any of the project watersheds. Existing geomorphic and hydrologic processes affecting fine and course sediment routing, water quality and channel structure would continue. Proposed new road construction and reconstruction of existing roads in the project area would not occur, which would maintain the current total stream density, sediment delivery and water routing due to roads in the watersheds. Proposed decommissioning of 0.25 miles of road would not occur, which would result in no decrease of the relatively high existing total road density within the Bob Creek drainage.

Soils - Road construction and timber harvest impacts described in the action alternatives would not occur. The opportunity to improve soil productivity of previously compacted skid trails (Units 25A and 25C) over pre-harvest levels with subsoiling would not occur. Decommissioning roads to improve soil productivity on 0.25 miles of road would also not occur at this time.

Wildlife - There would be no direct impacts to wildlife as a result of timber harvest within those stands proposed for harvest. The existing old growth habitat would remain suitable for old growth dependent species such as the NSO.

B. Action Alternatives:

The following paragraph discusses the direct impacts (i.e. impacts caused by the action at the same time and place) and indirect impacts (i.e. impacts caused by the action but occur later in time and farther removed in distance) of the Proposed Action.

Harvesting the regeneration areas would cause an immediate increase in fuel loadings (slash) in the range of 20 to 45 tons per acre. Approximately 15% to 35% of this slash would be in the fine fuel category, dead vegetative material 3 inches in diameter or less. These fuels represent the component of the fuel profile that most influence fire rate of spread. The fine fuels should decompose to background levels, within 3 to 10 years. Uncontrolled fire in this situation could seriously damage the residual stand. Harvesting of the thinning areas would produce a direct impact of adding 10-15 tons of slash per acre. Approximately 30-40% of this debris would be limb wood (flashy fuels). This slash would fall to background levels in 3-10 years, and would add nutrients to the soil.

The predicted average diameter in twenty years by thinning in the RR is 14.1 inches compared to 11.3 inches without thinning and 23 inches in the uplands compared to 17.1 inches without thinning. The total number of trees and diameter distribution may be more like a natural stand under this alternative. The stand would still be overly dense, therefore mortality would be expected in trees up to 26 inches in diameter.

Botanical - Both alternatives would result in reduced habitat and diversity of plant species due to the temporary building of roads.

Fisheries - Accelerated rates of erosion and sediment transport from roads and harvest is the most significant direct effect on fish habitat. Increased sediment would be short-term and minimized by only allowing road work during the dry season and adhering to all BMP's. Long-term benefits from road decommissioning and improvements would result in restored natural hydrologic functions and reduced sedimentation. Within the reserves, harvest of trees may increase the amount of sunlight entering the stand, but no streamside vegetation that directly influences stream temperature would be removed. An unquantifiable but small amount of additional sediment may be transported to the streams from actions within the RR.

Indirect impacts to fisheries would occur mainly by altering large woody material inputs in the areas proposed for thinning. No indirect impacts to fisheries are expected within the regeneration units. Large wood recruitment would be delayed within the thinning portion until the trees are larger and have more potential to benefit fisheries species and habitat.

Hydrology - No direct adverse effects to hydrologic resources are expected due to proposed harvest of units under Alternative A. Withdrawal from harvest for all Riparian Reserves, and adherence to project design features (PDF) such as no yarding through reserves, should protect hydrologic function and water quality in streams within the units. For harvest outside of RR, implementation of PDF's and BMP's should minimize potential impacts to hydrologic function such as groundwater recharge. All proposed new, temporary, and reconstructed roads would be located on or near ridgetops with stable soils (see Soils Report). Seasonal restrictions for any construction or hauling would limit any additional sediment delivery at stream crossings. Proposed construction of 0.15 miles of new permanent road in unit 25B (Bob Creek drainage) should have minimal impact to hydrologic resources due to the ridgetop location, and due to implementation of required BMP's and PDF's for projects on Roseburg District (RMP, 1995).

The indirect impacts of proposed decommissioning of 0.25 miles of existing road in Bob Creek and improvements to drainage features such as culverts and ditches on existing roads may cause a short-term increase in sediment and reduction of stream water quality, but long-term beneficial effects should also occur due to these proposed activities. Proposed road

decommissioning and drainage improvements should also result in a small decrease of the existing stream network density due to roads within all project watersheds. Adherence to project BMP's and PDF's should limit any potential impacts to downstream beneficial uses of water from any proposed harvest unit or from any watershed in this project area.

Both the direct and indirect effects from implementation of Alternative B would be the same as Alternative A, except for the effects due to commercial thinning of timber within RR in units 31A and 31B. Thinning within these reserves is expected to cause minimal impacts to hydrologic function for upper reaches of Bond Ck or East and West Fork of Greenman Ck, if proposed PDF's and current BMP's are implemented. Protection of the riparian buffers from any harvest, and adherence to design features such as no skidding or cable yarding through these areas, should result in minimal impacts to stream temperature and other water quality parameters within these proposed units. There should also be minimal direct or indirect impacts to downstream beneficial uses of water due to proposed thinning within these reserves.

Soils - Compaction, soil loss through erosion and mass movement (slumps and landslides), displacement of soil through mechanical means and alteration of the soil's nutrient, physical and biological properties through slash burning are the main direct and indirect impacts to the soils productivity. Long-term soil productivity would not be significantly impacted because best management practices would be carried out (RMP Appendix D). The impacts would be the same for both action Alternatives A, except that the soils inside the RR would be impacted under Alternative B. Yarding impacts to soil inside the RR would be small.

Wildlife - This would result in direct loss of structure and environmental conditions that species dependent upon late-successional forests depend on. Harvest in the four sections would remove habitat or modify habitat within the provincial home range of three NSO sites (core areas). One of these sites has shown low levels of occupancy through 1998. Although no evidence was noted of red tree vole (RTV) occurrence during field visits, the potential exists for the species to be present. Older age coniferous forests furnish optimal conditions for the RTV (Carey; Biswell; et.al.), however, the species does successfully utilize younger age forests. (Mires, per. obs.; Carey, et.al.). Further, red tree voles are known to have colonized small isolated stands of conifers some distance from old growth habitat. (Mires, Pers. Obs.) This would indicate that RTV's have the capability to move to suitable habitats and/or re-occupy stands that have been impacted. Harvest would produce early seral habitat that would support species dependent on that habitat type for one or all of their life requirements. This early seral habitat would persist for a short period (approx. 15 years) before conifer canopy closure takes place and many herbaceous species of plants and shrubs are shaded out. This would result in the loss of early seral species such as creeping voles, savannah sparrows and most reptile species.

C. Cumulative Impacts Analysis

The following paragraph discusses the cumulative impacts (i.e. the incremental impacts of the action when added to other past, present and foreseeable future actions).

One of the results of the proposed prescribed burning operations would be to reduce fuel loadings, favorably alter the fuel profile, and lessen the threat of future catastrophic wildfire. Impacts to the air, soil, and water resources as a result of prescribed burning and fuel treatments are covered in the final SEIS and Roseburg District RMP.

Fisheries - Cumulative impacts to fisheries are measured as an increase in harvested acres and increased road miles within the watershed. This action would increase the amount of harvested acres, but would not increase the miles of permanent road. Timber harvest within RR would be limited to those actions that have a neutral or beneficial impact to fisheries species and habitat.

Hydrology - Existing ECA (Equivalent clearcut area) values for all watersheds and all ownerships in the project area range from 8 to18%. ECA values after all proposed regeneration timber harvest would increase by 1 to 2% with a total range from 9 to 20% in all watersheds. All of the proposed harvest units are located within the transient snow zone (TSZ). Calculation of Water Available for Runoff (WAR) was done which estimates peak discharges. After proposed regeneration timber harvest within the TSZ of these same watersheds, all the WAR values would remain low or change to the low and moderate sensitivity categories (see Hydrologist's Report).

Soils - Incorporation of BMP's should result in minor contributions to the negative cumulative impacts to the soils resource. The general trend of soil productivity on BLM surface should be positive. The harvest and spur construction/use/decommissioning aspects of this action alternative would essentially not add to sediment input into streams at sixth-field watershed scales.

Wildlife - Harvest would remove or modify approximately 183 acres of late-successional forest habitat that is currently present in the watersheds.

V. CONTACTS, CONSULTATIONS, AND PREPARERS

A. Agencies, Organizations, and Persons Consulted

The Agency is required by law to consult with the following federal and state agencies (40 CFR 1502.25):

1. **Threatened and Endangered Species Section 7 Consultation -** The Endangered Species Act of 1973 (ESA) requires consultation to ensure that any action that an Agency authorizes, funds or carries out is not likely to jeopardize the existence of any listed species or destroy or adversely modify critical habitat. The required ESA consultation was

accomplished with the **US Fish and Wildlife Service** (FWS) and the Biological Opinion (BO) was received on June 28, 1999 (Ref. no. 1-15-99-F-206). The BO concluded the proposed action is "not likely to jeopardize the continued existence of the spotted owl, murrelet, or bald eagle, and are not likely to adversely modify spotted owl or murrelet critical habitat" and an "Incidental Take Statement" was issued. Incidental Take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency. The FWS has stipulated terms and conditions for the Incidental Take having to do with seasonal restrictions for the northern spotted owl and the marbled murrelet. A BO has not been received from the **National Marine Fisheries Service**. The Roseburg District's BA for Endangered Species consultation was submitted to NMFS on July 16, 1999. The was a "may effect likely to adversely affect" for Umpqua River cutthroat trout, Oregon Coast steelhead trout and Oregon Coast coho salmon and an "Incidental Take Statement" is anticipated.

2. **Cultural Resources Section 106 Consultation** - Consultation as required under Section 106 of the National Historic Preservation Act has been completed for five of six found sites. The significance of five evaluated prehistoric archaeological sites was conducted with the **State Historical Preservation Office** (SHPO). The SHPO concurred that none of the sites were eligible for inclusion on the National Register of Historical Places. A sixth site was not evaluated because it was contained within a S&M reserved area.

B. Public Notification

1. Notification was provided to affected **Tribal Governments** (Confederated Tribes of the Coos, Lower Umpqua and Siuslaw; Grande Ronde; Siletz; and the Cow Creek Band of Umpqua Indians). No comments were received.

2. Four letters were sent to **adjacent landowners**. No comments were received (see Appendix G - Public Contact).

3. The **general public** was notified via the Roseburg District Planning Update (Spring 1998 and subsequent issues) going to approximately 150 addressees. These addressees consists of members of the public that have expressed an interest in Roseburg District BLM projects. Comments were received from Umpqua Watersheds, Inc. (see Appendix D - Issue Identification Summary).

4. Notification will also be provided to certain **State, County and local government** offices (see Appendix G - Public Contact).

5. A 30-day **public comment period** will be established for review of this EA. A Notice Of Availability will be published in the News Review, a daily newspaper of general circulation in Roseburg, Oregon. This EA and its associated documents will be sent to all parties who request them. If the decision is made to implement this project, a notice will be published in the News Review.

C. List of Preparers

Isaac Barner	Cultural Resources
Kevin Cleary	Fuels Management
Dan Couch	Watershed Analysis
Dan Cressy	Soils
Dave Erickson	Recreation / VRM
Darla Foster	Engineer
Dick Greathouse	Layout Forester
Al James	Silviculture
Fred Larew	Lands
Jim Luse	EA Coordinator / EA Preparer
Garth Ross	Fisheries
Ed Rumbold	Hydrology
Steve Weber	Presale Forester
Ron Wickline	Botany

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order. These resources or values are either not present or would not be affected by the proposed actions or alternatives, unless otherwise described in this EA. This negative declaration is documented below by individuals who assisted in the preparation of this analysis.

Element	Responsible Position	Initials	Date	Remarks
Air Quality	Fuels Management			
Areas of Critical Environmental Concern	Environmental Specialist			
Cultural Resources	Archeologist			
Environmental Justice	Environmental Specialist			
Farm Lands (prime or unique)	Soil Scientist			
Flood Plains	Hydrologist			
Native American Religious Concerns	Environmental Specialist			
Threatened or Endangered Species (wildlife)	Wildlife Biologist			
Threatened or Endangered Species (plants)	Botanist			
Threatened or Endangered Species (fish)	Fisheries Biologist			
Hazardous/Solid Wastes	District Hazardous Materials Coordinator			
Water Quality Drinking/Ground Water	Hydrologist			
Wetlands/Riparian Zones	Hydrologist			
Wild and Scenic Rivers	Recreation Planner			
Wilderness	Recreation Planner			

References Cited

Biological Opinion and Conference Opinion - Implementation of Land Management Plans (USFS) and Resource Management Plans (BLM) (NMFS, March 18, 1997)

Biological Opinion for fiscal year 1999-2000 Timber Sale Program and other Projects Affecting Listed Species (Ref: 1-15-99-F-206) (FWS, June 28, 1999).

Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and OldGrowth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS) (Feb. 1994)

Forest Ecosystem Management: An Ecological, Economic, and Social Assessment, Report of the Forest Ecosystem Management Assessment Team [FEMAT] (July 1993)

Integrated Weed Management, BLM Manual 9015 - Dec. 2, 1992

Interim Guidance for Survey and Manage Component 2 Species: Red Tree Vole, BLM - Instruction Memorandum No. OR-97-009, Nov. 4, 1996

Little River Watershed Analysis, September 1995; Umpqua National Forest and Roseburg Bureau of Land Management, USDA / USDI

Management of Wildlife and Fish Habitats in Forests of Western Oregon and Washington, USDA - Forest Service (June 1885)

National Environmental Policy Handbook (BLM Handbook H-1790-1)

1998 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution, Oregon State Department of Environmental Quality, Portland, Oregon

PNW Technical Report PNW-105, pg 51-57, 1980

Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD) and Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Related Species Within the Range of the Northern Spotted Owl (S&G) (April 13, 1994)

Roseburg District Hazardous Materials (HAZMAT) Emergency Response Contingency Plan (FY 1998)

Roseburg District Record of Decision and Resources Management Plan (RMP) (June 2, 1995)

Western Oregon Transportation Management Plan, June 1996; BLM - Oregon State Office, USDI

Other references as cited in the individual Specialist's Reports (Appendix F - Analysis File)